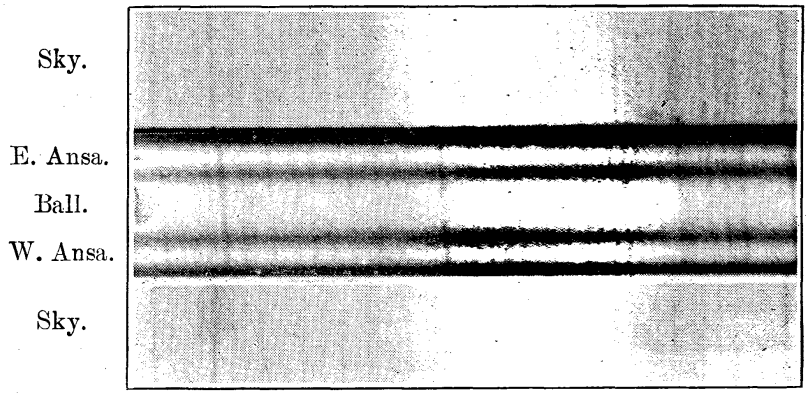
To prevent the eye from being influenced by the slope of the planetary lines, it is best to cover the central spectrum with a narrow slip of paper.



Spectrum of Saturn, 1895 April 19.
Enlarged 15 diameters from the original negative taken at the Allegheny Observatory, by J. E. Keeler.

The large relative displacement of the planetary and sky spectra is due to the fact that the comparison spectrum was photographed the next morning after the exposure to the planet, and at a quite different temperature. It does not affect the value of the photograph for this particular purpose. The exposures were, *Saturn* 2 hours, and sky 4 minutes. As the sky spectrum was too dense, a bar was placed across the plate during part of the exposure (in making the positive), and some horizontal markings resulted, which are not on the original negative.

Yours very truly,

JAMES E. KEELER.

Observations of Jupiter. By W. F. Denning.

The following are a few results of observations of *Jupiter* made between 1894 November 5 and 1895 May 10 with a 10-inch reflector, powers 252 and 312.

The red spot was seen on several occasions, but it was extremely faint, especially at its preceding end. Its south side appeared to be connected with a grey belt. Between 1894 November 25 and 1895 May 10 I found a mean period of

$9^h\ 55^m\ 41^s{\cdot}2$ (401 rotations).

This is slightly more ($0^s{\cdot}6$) than the period ($9^h\ 55^m\ 40^s{\cdot}63$) on which Mr. Marth's zero meridian System II. is based, and it

agrees exactly with the rate I derived from the preceding opposition. According to my last observation on 1895 May 10 the spot followed the zero meridian 8 minutes, so its longitude was $4^{\circ}\cdot9$.

In north latitude about 35° there has been visible a narrow, dark, broken belt, and black spots have sometimes been seen upon it. I watched two of these objects between 1894 December 4 and 1895 January 28, and determined their periods as follow :—

	h	m	s	
(1)	9	55	39·5	(118 rotations)
(2)	9	55	38·5	(„)

The mean of the pair is $9^{h}\ 55^{m}\ 39^{s}$, or $2^{s}\cdot2$ less than that of the red spot. The markings on this northerly belt would therefore occupy about 18 years in completing one revolution of *Jupiter* relatively to the position of the red spot.

The great north equatorial belt is double, and its north side has exhibited a very disturbed condition in recent years. A numerous array of white and dark spots are dispersed along the belt in an irregular manner. I obtained the times of transit of many of these objects, and the resulting periods of five white and four dark spots are as follow :—

White Spots.				*Black Spots.*			
h	m	s		h	m	s	
9	55	37·7	(406 rotations)	9	55	37·8	(447 rotations)
9	55	37·1	(249 „)	9	55	36·8	(389 „)
9	55	36·6	(389 „)	9	55	32·2	(63 „)
9	55	34·4	(442 „)	9	55	31·0	(254 „)
9	55	31·3	(104 „)				

The motions of the spots differ in individual cases, and the rate of the same objects is not consistently maintained during a long interval. The fluctuations of speed are too great to be satisfactorily accounted for by errors of observation. It will be seen from the list that the rotation period as derived from the different objects varies to the extent of $6^{s}\cdot8$, the time ranging from $9^{h}\ 55^{m}\ 31^{s}$ to $9^{h}\ 55^{m}\ 37^{s}\cdot8$. The mean of all is $9^{h}\ 55^{m}\ 35^{s}$, or $6^{s}\cdot2$ less than the period of the red spot.

With reference to equatorial spots not many conspicuous examples were observed in 1894 November and December, but in 1895 January they became numerous. Ill-health and interruptions from cloudy weather, however, prevented my following them up with sufficient closeness to get good rotation periods, as the objects varied rapidly in appearance, and it was not easy to identify them. In March I observed a white and black equatorial spot for several nights as follow :—

	White Spot on C.M.	Dark Spot on C.M.	Interval.
	h m	h m	m
March 22	8 47	9 2	15
24	10 4	10 15	11
31	9 27	9 35	8

The dark spot was rapidly gaining on the white, and on April 5 and 7 I looked for the objects again, but the aspect of the region had quite changed, apparently by the blending of the two spots. I obtained observations on succeeding nights, thinking it possible the dark spot might reappear to the west of the white one, but I failed to recover either of the objects with certainty.

Saturn.—During the first half of May I made observations of this planet on ten nights with a view to detect spots on the equator or belts. I employed one of Steinheil's "monocentric micrometer oculars" of $\frac{1}{4}$ inch equivalent focus (= power of 312), but detected no irregular markings on the disc. There was a narrow dark belt near the equator and a broad diffused band of shading in the north hemisphere, but no other details could be made out with the means employed.

Bristol: 1895 *May* 20.

Diameters of Jupiter and his Satellites observed at the Royal Observatory, Greenwich.

(*Communicated by the Astronomer Royal.*)

Diameters of Jupiter.

The following measures were made with the 28-inch refractor during the past winter. They were commenced on 1894 November 23, but the bad weather and frost prevented any work from 1895 February 5 to March 12, so that the series is not as complete as was wished. The diameters are reduced to mean distance 5·2028 (Leverrier), and the equatorial diameters are corrected for phase from Mr. Marth's Ephemeris, published in the Society's *Monthly Notices*. The following table exhibits the results found by each observer, in separate columns, and also distinguishes between the diameters obtained with different eye-pieces, those with the powers 450 and 470 being grouped together. It will be seen that there are indications of personality and also of a difference due to the power of the eye-piece employed.